

## CLAIMS

1. A rotary compressor comprising a rotation mechanism (20) including a cylinder (21) having an annular cylinder chamber (50); an annular piston (22) contained in the cylinder chamber (50) eccentrically from the cylinder (21) and sectioning the cylinder chamber (50) into an outer compression chamber (51) and an inner compression chamber (52); and a blade (23) disposed in the cylinder chamber (50) and sectioning each said compression chamber (51, 52) into a high-pressure side and a low-pressure side, said rotation mechanism (20) compressing a fluid by relatively rotating the cylinder (21) and the piston (22),

wherein one of the two compression chambers (52, 51) serves as a low-stage side compression chamber (51) for compressing a low-pressure fluid into an intermediate-pressure fluid, and

the other of the two compression chambers (52, 51) serves as a high-stage side compression chamber (52) for compressing the intermediate-pressure fluid compressed in the low-stage side compression chamber (51) into a high-pressure fluid.

2. The rotary compressor of Claim 1, wherein

the outer compression chamber (51) serves as the low-stage side compression chamber (51), and the inner compression chamber (52) serves as the high-stage side compression chamber (52).

3. The rotary compressor of Claim 1 further comprising a casing (10) containing the rotation mechanism (20),

wherein an intermediate-pressure space (4b) into which the intermediate-pressure fluid compressed in the low-stage side compression chamber (51) is introduced is formed inside the casing (10), and

a gas injection pipe (1c) through which a gas is injected into the intermediate-pressure space (4b) is connected to the casing (10).

4. The rotary compressor of Claim 1 further comprising a driving mechanism (30) for driving the rotation mechanism (20),

wherein the rotation speed of the driving mechanism (30) is variably controlled.

5. The rotary compressor of Claim 1 further comprising a casing (10) containing the rotation mechanism (20),

wherein the casing (10) is formed internally with an intermediate-pressure space (4b) into which the intermediate-pressure fluid compressed in the low-stage side compression chamber (51) is introduced and a high-pressure space (4a) into which a high-pressure fluid is introduced, the intermediate-pressure space (4b) being obtained by compressing, in the low-stage side compression chamber (51), the intermediate-pressure fluid contained in the intermediate-pressure space (4b) and discharged from the high-stage side compression chamber (52).

6. The rotary compressor of Claim 5, wherein

the intermediate-pressure space (4b) is formed below the high-pressure space (4a),

and

the casing (10) includes an oil return passage (80) through which the high-pressure space (4a) communicates with the intermediate-pressure space (4b).

7. The rotary compressor of Claim 1 further comprising a driving mechanism (30) for driving the rotation mechanism (20),

wherein the driving mechanism (30) includes a stator (32), a rotor (31) and a drive shaft (33) coupled to the rotor (31),

the drive shaft (33) includes an eccentric part (35) that is eccentric from the center of rotation,

the eccentric part (35) is coupled to the rotor (20), and

a part of the drive shaft (33) located to both axial sides of the eccentric part (35) is supported via bearing parts (18, 19) in a casing (10).

8. The rotary compressor of Claim 1, wherein

the piston (22) has a shape of C obtained by cutting an annular ring,

the blade (23) extends from the inner peripheral wall surface of the cylinder chamber (50) to the outer peripheral wall surface thereof and passes through the cut part of the piston (22), and

- 5 swing bushes (27) coming in surface contact with the piston (22) and the blade (23) are disposed in the cut part of the piston (22) such that the blade (23) is reciprocable and the blade (23) is swingable relative to the piston (22).